

REMARKS/ARGUMENTS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1 and 3-7 are pending; Claims 1, 3, and 7 are amended; and Claim 2 is cancelled by the present amendment.

The outstanding Official Action rejected Claims 1-7 under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,597,679 to Willars in view of U.S. Patent No. 7,020,108 to Virtanen.

In light of the rejection on the merits of the claims, Claim 1 is amended to incorporate cancelled Claim 2. Claim 1 is also amended to recite that the higher layer is “higher than a physical layer having a physical layer transmission rate.” Support for this amendment is found in the specification at least on page 10, lines 21-31. The remaining changes to the claims address minor informalities. Thus, no new matter is added.

Briefly recapitulating, amended Claim 1 is directed to a mobile communication apparatus for controlling inter-frequency handover. The communication apparatus includes a required quality identifying unit, a transmission rate control unit, and an inter-frequency handover instruction unit. The required quality identifying unit is configured to identify a quality required for data addressed to a mobile station. The inter-frequency handover instruction unit is configured to temporarily suspend signal transmission from a radio base station in communication with the mobile communication controlling apparatus and allow the mobile station to perform inter-frequency measurement. The transmission rate control unit is configured to control a data transmission rate of a higher layer, which is higher than a physical layer having a physical layer transmission rate, based on the identification result supplied from the required quality identifying unit. The required quality identifying unit is further configured to determine whether the identified quality accepts delay variation, and if

the identified quality does not accept delay variation, the transmission rate control unit is configured to reduce the transmission rate of the higher layer.

By way of summary, in a non-limiting example, Applicants' Figure 4 illustrates the mobile station 10 in communication with the radio base station 20. The radio base station 20 is in communication with the mobile communication apparatus 40. Applicants' Figure 5 illustrates the mobile communication apparatus 40 having the required quality identifying unit 41 and the transmission rate control unit 42.

Turning now to the applied reference, Willars describes a method for a mobile station to control a compressed mode request for inter-frequency handovers. In the compressed mode approach, the mobile station is given spare time within a transmission frame to measure other frequencies prior to handover.¹ Willars describes that when a mobile station is in communication with a first base station and reaches a geographic boundary of a second base station, the mobile station sends a compressed mode request to a network. The compressed mode request includes a frame number that the mobile station intends to enter the compressed mode and the slot duration of the spare time.²

The outstanding Official Action acknowledges that Willars fails to disclose or suggest a feature analogous to, as recited in amended Claim 1, *the required quality identifying unit is further configured to determine whether the identified quality accepts delay variation, and if the identified quality does not accept delay variation, the transmission rate control unit is configured to reduce the transmission rate of the higher layer*. To cure this deficiency, the outstanding Official Action relies on Virtanen.³

Virtanen describes three techniques for creating a transmission gap (i.e., the spare time as described in Willars) when employing the compressed mode. In a first technique, user data delivered from upper protocol layers to a first protocol layer is limited to create a

¹ See Willars at column 4, lines 1-7 and 49-50.

² See Willars at column 8, lines 28-50.

³ See Official Action of June 19, 2007 at page 4.

transmission gap. However, Virtanen describes that this technique does not work for delay-sensitive applications, such as real-time applications.⁴ In a second technique, a transmission gap is created by reducing a spreading factor used to spread data of a communication connection. For example, reducing the spreading factor by two doubles a symbol rate of an information stream so that the same information is transmitted in half the time slots.⁵ In a third technique, certain bits of coded data are ignored to produce a coded data flow having a reduced rate in the compressed mode, compared to a continuous transmission mode, to create a transmission gap.⁶

The outstanding Official Action asserts that the third technique of Virtanen discloses that if *the identified quality does not accept delay variation, the transmission rate control unit is configured to reduce the transmission rate of the higher layer.*⁷ As required by Claim 1, the required quality identifying unit *is configured to determine whether the identified quality accepts delay variation.* However, Virtanen fails to disclose or suggest that the third technique of ignoring certain data bits of coded data flow is employed upon a determination that that a quality of the coded data flow *does not accept delay variation* as required by Claim 1.

As discussed above, Virtanen describes in the third technique that the continuous transmission mode is switched to the compression mode where the coded data is punctured (e.g., certain bits are ignored) to lower the rate of the coded data. Contrary to Virtanen, puncture is not performed, and the transmission rate itself is reduced. Generally, when the transmission rate of the upper layer is 64 kbps, the transmission rate of the lower layer is also 64 kbps. However, according to one non-limiting embodiment of Applicants' inventions, by reducing the transmission rate of the upper layer to 32 kbps, data are received in the lower

⁴ See Virtanen at column 3, lines 46-48.

⁵ See Virtanen at column 3, lines 48-56.

⁶ See Virtanen at column 3, lines 61-64.

⁷ See Official Action of June 19, 2007 at page 4.

layer at every other timing, and the skipped timing is used to perform multiband frequency measurement.⁸

Furthermore, as required by Claim 1, the transmission rate of the *higher layer* is reduced if *the identified quality does not accept delay variation*. Virtanen describes that user data is delivered from upper protocol layers to a first protocol layer for coding and transmission.⁹ Since Virtanen describes that the third technique ignores certain bits of coded data, the third technique reduces the transmission rate of the first protocol layer. As required by Claim 1, the *higher layer is higher than the physical layer having a physical layer transmission rate*.

Applicants submit that the first protocol layer is different from Applicants' claimed *higher layer* since Virtanen fails to disclose or suggest that the first protocol layer is *higher than a physical transmission layer having a physical transmission rate* as required by Claim 1. Accordingly, since the transmission rate of the first protocol layer of Virtanen is reduced instead of the upper protocol layers, the third technique of Virtanen fails to disclose or suggest that the *higher layer* is reduced if *the identified quality does not accept delay variation*.

Furthermore, Virtanen describes for the second technique, that a spreading factor used to spread data of a communication connection is reduced. However, since reducing the spreading factor increases the symbol rate of an information stream, the transmission rate is increased. Accordingly, the second technique of Virtanen does not *reduce the transmission rate of the higher layer* as required by Claim 1.

Additionally, Virtanen describes for the first technique, as discussed above, that user data delivered from the upper protocol layers to a first protocol layer is limited to create a transmission gap. However, Virtanen further describes that this technique does not work for

⁸ See specification at page 5, lines 23-30.

⁹ See Virtanen at column 3, lines 41-44.

delay-sensitive applications, such as real-time applications. Applicants submit that delay-sensitive applications do not accept delay variations. Accordingly, since Virtanen describes that limiting data from the upper protocol layers to the first protocol layer does not work for delay-sensitive applications, Applicants submit that Virtanen teaches away from reducing the transmission rate of the higher layer *if the identified quality does not accept delay variation* as required by Claim 1.

"A reference may be said to teach away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994). To this end, "disclosures in the references that diverge from and teach away from the invention cannot be disregarded", Phillips Petroleum Company v. U.S. Steel Corp., 9 U.S.P.Q.2d 1461 (Fed. Cir. 1989). Thus, in light of Virtanen, one of ordinary skill in the art would be discouraged from reducing *the transmission rate of the higher layer if the identified quality does not accept delay variation* as required by Claim 1.

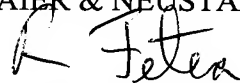
Accordingly, Applicants submit that the combination of Willars and Virtanen fails to disclose or suggest all the features of Claim 1 as amended. Furthermore, since the combination of Willars and Virtanen teaches away from Applicants' Claim 1, Applicants submit that *a prima facie case* of obviousness has not been presented on this independent ground. Thus, Applicants respectfully request that the rejection of Claim 1, and the claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

As independent Claim 7 is amended to recite features analogous to Claim 1, Applicants submit that Willars and Virtanen fail to disclose or suggest all the features of Claim 7. Thus, Applicants respectfully request that the rejection of Claim 7, and the claims depending therefrom, under 35 U.S.C. § 103(a) be withdrawn.

Consequently, in view of the present amendment and response, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. A Notice of Allowance is earnestly solicited.

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